

Model for Camel IgG 3

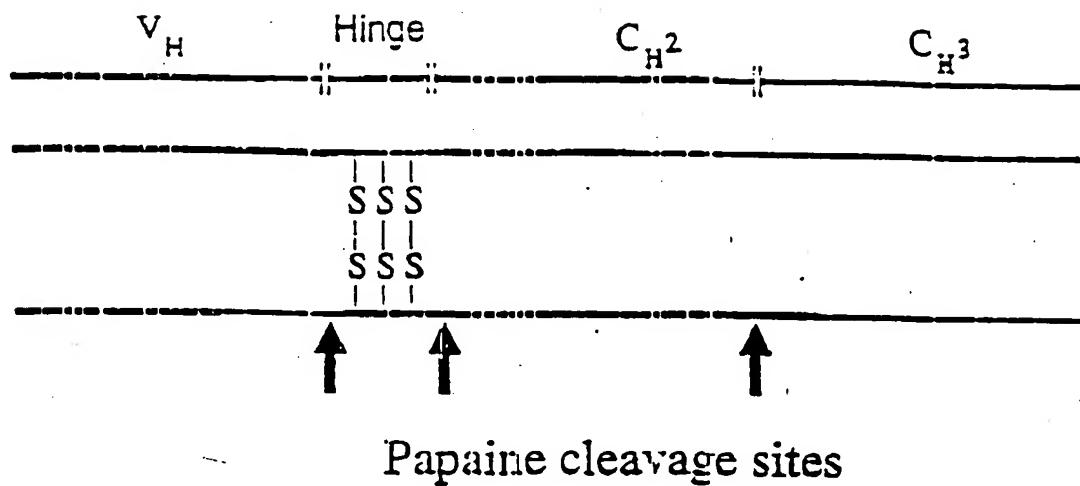


Fig 5: Schematic representation of Camel IgG₃ model.

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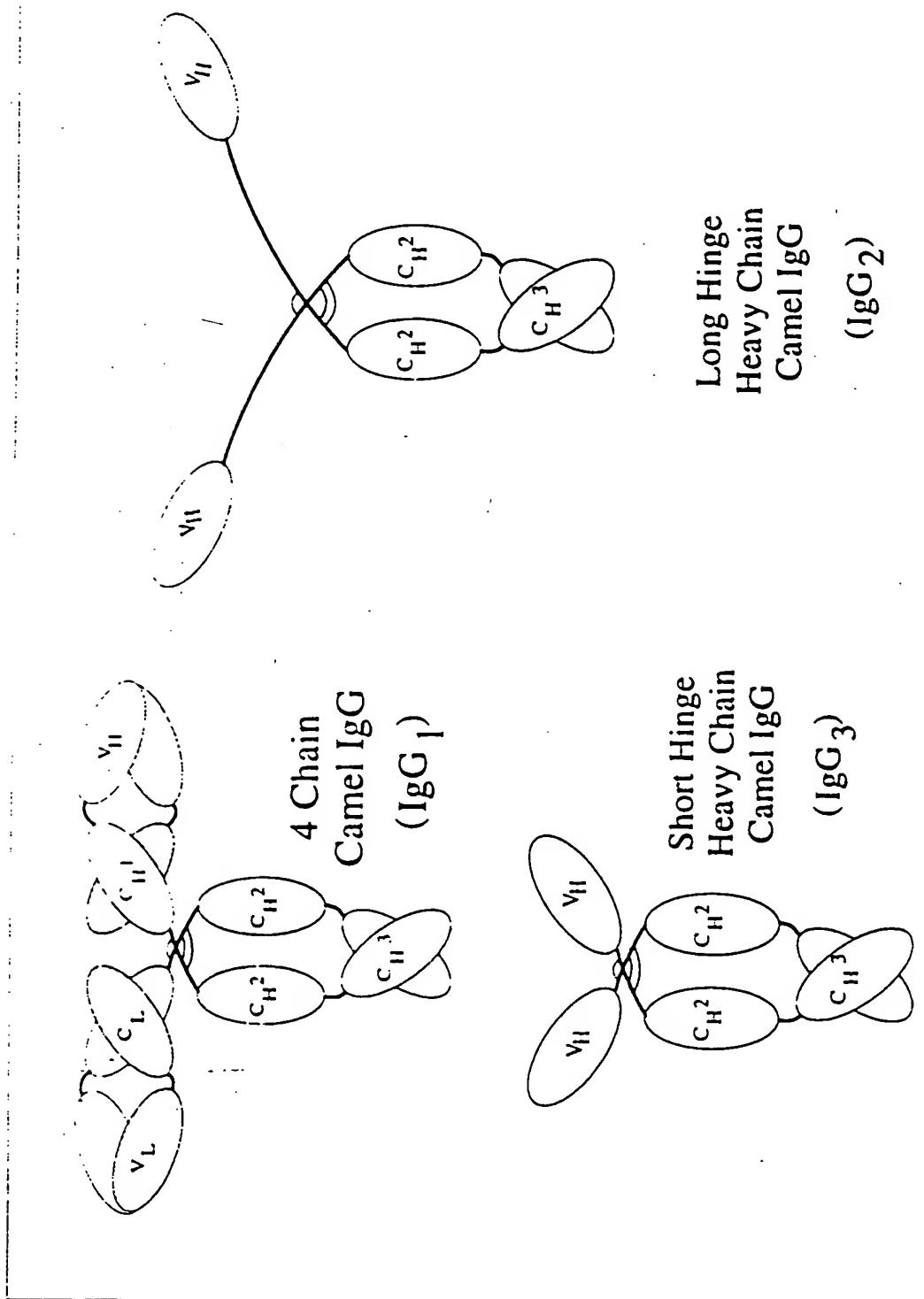


Fig 6: A schematic representation of Camel immunoglobulins IgG₁, the putative IgG₂ and IgG₃. The large (Pro-X)₁₂ of the putative IgG₂ molecule can be modelled into a 6 aa repeat

DR01006	C-----	TCGAG---TCTGGGGGAGG
DR27006	C-----	TCGAG---TCTGGGGGAGG
DR03006	C-----AGGTGA-----	AACTGCTCGAG---TCTGGAGGGAGG
DR11006	C-----	TCGAG---TCTGGGGGAGG
DR24006	C-----AGGTGA-----	AACTGCTCGAG---TCTGGGGGAGG
DR16006	C-----	TCGAG---TCTGGAGGGAGG
DR19006	C-----	TCGAG---TCTGGAGGGAGG
DR07006	C-----	TCGAG---TCTGGGGGAGG
DR16006	C-----	TCGAG---TCTGGGGGAGG
DR20006	C-----	TCGAG---TCAGGGGGAGG
DR25006	C-----	TCGAG---TCTGGGGGAGG
DR20006	C-----	TCGAG---TCTGGAGGGAGG
DR21006	C-----	TCGAG---TCTGGGGGAGG
DR09006	C-----AGGTGA-----	AACTGCTCGAG---TCTGGGGGAGG
DR17006	C-----	TCGAG---TCTGGGGGAGG
DR13006	C-----	TCGAG---TCAGGGGGAGG
DR02006	CTCGAGTCAGGTGTCCGGTCTGATGTGCAGCTGGTGGCGTCTGGGGGAGG	

DR11006	ATCGGTGCAGGGCTGGAGGGTCTCTGAGACTCTC--GTGCG-CAGCCTCTG
DR27006	CTCGGTGCAGGGCTGGAGGGTCTCTGAGACTCTCCTGTGCATCTTCTCTA
DR13006	CTCGGTGCAGACTGGAGGATCTCTGAGACTCTCCTGTGCAGT--C-TCTG
DR11006	CTCGGTGCAGGGCTGGAGGGTCTCTGAGACTCTCCTGTAAATGT--C-TCTG
DR24006	CTCGGTGCAGGGCTGGAGGGTCTCTGAGACTCTCCTGTAAATGT--C-TCTG
DR16006	CTCGGCGCAGGGCTGGAGGATCTCTGAGACTCTCCTGTGCAGC--CCACGG
DR19006	CTCGGTTCAAGGCTGGAGGGTCCCTTAGACTCTCCTGTGCAGC--C-TCTG
DR17006	CTCGGTGCAGGGCTGGAGGGTCTCTGAGACTCTCCTGTGCAA--TCTCTG
DR16006	CTCGGTGCAGGGCTGGAGGGTCTCTGAGACTCTCCTGTACAG--GCTCTG
DR20006	CTCGGTACAGGTTGGAGGGTCTCTGAGACTCTCCTGTGTAG--CCTCTA
DR25006	CTCGGTACAAACTGGAGGGTCTCTGAGACTCTCTTGC--AAATCTCTG
DR20006	CTCGGTGCAGGGCTGGAGGGTCTCTGAGACTCTCCTGTG--TAGCCTCTG
DR21006	CTCGGTGCAGGGTGGAGGGTCTCTGAAACTCTCCTGTAAAAT--CTCTG
DR09006	CTCGGTGCAGGGCTGGGGGTCTCTGACACTCTCTTGTG--TATACAC--
DR17006	CTCGGTCCAACCTGGAGGATCTCTGACACTCTCCTGTACAGTT--TCTG
DR13006	CTCGGTGGAGGCTGGAGGGTCTCTGAGACTCTCCTGTACAG--CCTCTG
DR02006	CTCGGTGCAGGGCTGGAGGGTCTCTGAGACTCTCCTGTACAG--CCTCTG

DR01006	GA--TACAGTAATT---GTCCCCCTCACTTG-GAGCTGGTATGCCAGTTT
DR27006	AA--TATATGCCCTT---GCACCTACGACAT-GACCTGGTACCGCCAGGCT
DR03006	GA--TTCTCCTTTA---GTACCACTGTAT-GGCCTGGTTCCGCCAGGCT
DR11006	GC--TCTCCCAGTA---GTACTTATTGCCT-GGCCTGGTTCCGCCAGGCT
DR24006	GC--TCTCCCAGTA---GTACTTATTGCCT-GGCCTGGTTCCGCCAGGCT
DR16006	GA--TTCCGC-TCA---ATGGTTACTACAT-CGCCTGGTTCCGTACGGCT
DR19006	AC--TACACCATCA---CTGATTATTGCAT-GGCCTGGTTCCGCCAGGCT
DR07006	GA--TACACGTACG---GTAGCTTCTGTAT-GGCCTGGTTCCGCCAGGCT
DR16006	GA--TTCCCCCTATA---GTACCTTCTGTCT-GGGGTGGTTCCGCCAGGCT
DR20006	CT--CACACCGACA---GTAGCACCTGTAT-AGGCTGGTTCCGCCAGGCT
DR25006	GA--TTGACTTTG---ATGATTCTGACGT-GGGGTGGTACCGCCAGGCT
DR20006	GA--TTCAATTTCG---AAACTCTCGTAT-GGCCTGGTACCGCCAGACT
DR21006	GAGGTACCCAGATCGTGTCTAAATCTTGGCCTGGTTCCGCCAGGCT

DR09006	-----CAACGATACTGGGACCA-----TGGGATGGTTGGCAGGGCT
DR17006	--GGGGCACCTAGA---GTGACTACAGTATTGGA-TGGATCGGGCAGGGCT
DR13006	G-----ATACGTTAT-CCT---CTATGGCCTGGTTCCGGCAGGGTT
DR02006	GAGA----CAGTTTCACTAGATT--TGCATGCTTGGTCCGGCAGGGCT
DR01006	CCAGGAACGGAGCGCGAGTTCGTCCTCCAGTATGGATCCGGATGGAAATAC
DR27006	CCAGGAAGGAGCGCGAATTGTCCTCAAGTATAATATTGATGGTAAGAC
DR03006	TCAGGAAAGCAGCGTGGGGGTCGAGCCATTAAATAGTGGCGGTGGTAG
DR11006	CCAGGGAGGGAGCGTGAGGGGGTCACAGCGATTAA-----CACTGATGG
DR24006	CCAGGGAGGGAGCGTGAGGGGGTCACAGCGATTAA-----CACTGATGG
DR16006	CCTGGGAAGGGCGTGAGGGGGTCGAACAATTAAATGGTGGTCG-----
DR19006	CCAGGGAGGAGCGTGAAATTGGTCGAGCGATTCAAGTTGTCGTAGTGA
DR07006	CCAGGCAAGAACGTGAGGGGATCGCAACTATTCTTAATGGTGGTACTAA
DR16006	CCAGGGAGGAGCGTGAGGGGGTCGCGGGTATTAATAGTGCAGGAGGTAA
DR20006	CCAGGGAGGAGCGCGAGGGGGTCGCAAGTATATATTGGTGTGGTGG
DR25006	CCAGGGCATGAGTGCACAAATTGGTCTCAGGTATTCTGAGTGATGGTACT-C
DR20006	CCAGGAAATGTGTGTGAGTTGGTCTCAAGTATTACAGTGATGG-----
DR21006	CCAGAGAAGGAGCGCGAGGGGATCGCAGTTCTCGACTAAGGATGGTAA
DR09006	CCAGGGAAAGAGTGCACGGGATCGCAGCTTGTGATGGTATGA-
DR17006	CCAGGGAGGACCGTGAAAGTAGTGCAGCCGCTAATACGGT-----
DR13006	CCAGGGCAGGAGCGCGAGGGGGTCGCGTTGTCAAACGG-----
DR02006	CCAGGGAGGAGTGCACGGGATTCAGCTCAAGCATTAAAGTAATGGAAGGAC
DR01006	CAAGTACA-----CATACTCCGTGAAGGGCCGCTTCACC
DR27006	ACATACG-----CAGACTCCGTGAAGGGCCGATTCA
DR03006	GACATACTA-CAACACATATGTCGCCAGTCCGTGAAGGGCCGATTCA
DR11006	CAGTATCAT-ATACGCA-----GCCGACTCCGTGAAGGGCCGATTCA
DR24006	CAGTGTCA-ATACGCA-----GCCGACTCCGTGAAGGGCCGATTCA
DR16006	-----CGA-CGTCACATACTACGCCAGTCCGTGACGGGCCGATTAC
DR19006	TACT--CGC-C-TCACAGACTACGCCAGTCCGTGAAGGGACGATTCA
DR07006	-----CACATACATGCCAGTCCGTGAAGGGCCGATTCA
DR16006	-----TACTTACTATGCCAGGCCGTGAAGGGCCGATTCA
DR20006	-----TACGAATTATGCCAGTCCGTGAAGGGCCGATTCA
DR25006	CATATACAAAGAGTGGAGACTATGCTGAGTCTGTGAGGGGGCGGGTTAC
DR20006	CA-AAACATACGTCGACC--GCA-----TGAAGGGCCGATTCA
DR21006	GA-----CATTCTATGCCAGTCCGTGAAGGGCCGATTCA
DR09006	-----CCTTCATTGATGAAACCGTGAAGGGGGCGATTCA
DR17006	-----CGACTAGTAAATTCTACGTCGACTTGTGAAGGGCCGATTCA
DR13006	--CTGACAAT-AGTGCATTATATGGCGACTCCGTGAAGGGCCGATTCA
DR02006	AACTGA-----GGCCGATTCCGTGCAAGGGCCGATTCA
DR01006	ATGTCCGAGGCAGCACCGAGTACACAGTATTCTGAAATGGACATTCT
DR27006	ATCTCCAAGACAGGCCAAGAACACGGTGTATCTGAGATGAACAGCCT
DR03006	ATCTCCAAGACACGCCAAGAACACGGTATATCTGATATGAACAACCT
DR11006	ATCTCCAAGACACGCCAAGAACACGGTACATCTCAGATGAACAACCT
DR24006	ATCTCCAAGACACGCCAAGAACACGGTATATCTCAGATGAACAACCT
DR16006	ATCTCCGAGACAGCCCCAAGAACACGGTGTATCTGAGATGAACAGCCT
DR19006	ATCTCCAAGGCACACCAAGAACACAGTGAATCTGAAATGAACAGCCT
DR07006	ATCTCCAAGACACGCCAGTGAAGACGATGTATCTGCTAATGAACAACCT
DR16006	ATCTCCAAGGGAAATGCCAAGAACACGGTGTATCTGAAATGGATAACTT
DR20006	ATCTCCAACCTAACGCCAAGAACACAGTGTATCTGAAATGAACAGCCT
DR25006	ATCTCCAGAGACACGCCAAGAACATGATATACCTTCAAATGAACAGCCT
DR20006	ATTTCTAGAGAGAACGCCAAGAACACGGTGTATCTACAACCTGAGGGCCT
DR21006	ATCTTCTTAGATAATGACAAGACCACTTCTCTACAACCTGATCGACT
DR09006	ATCTCCGAGACACGCCAAGAACACGGTGTATCTGAAATGAATAGTCT

DR17006 ATTTTCCAAAGACAAAGGCCAAGAAATACGGTATATCTGAAATGAGCTTCT
 DR13006 ATCTCCACGGACACGGCAAGAACACGGCTATCTGAAATGCCAACCT
 DR02006 ATCTCCCGAGACAAATTCCAGGAAACACAGTGTATCTGAAATGAAACAGCT

DR01006 GAAACCTGAGGACACGGCGATGTATTACTGTAAAAC-A---GCCCTAC--
 DR27006 GAAACCTGAGGACACGGCGATGTATTACTGTAAAAT-A---GA---TTC--
 DR03006 AACCCCTGAAGACACGGCTACGTATTACTGTGCGGGCGG---TCCCAGCCC
 DR11006 GCAACCTGAGGATACGGCCACCTATTACTGCGCGGGCAA---GACTGACGG
 DR24006 GCAACCTGAGGATACGGCCACCTATTACTGCGCGGGCAA---GACTGACGG
 DR16006 GAAACCTGAGGACACGGCCATCTACTCTGTGCGAGCAG---G----CTC
 DR19006 GACACCTGAGGACACGGCCATCTACAGTTGTGCGGGCAA---C----CAG
 DR07006 GAAACCTGAAGACACGGGCACCTATTACTGTGCTG-CA---GAACTAAGT
 DR16006 GAAACCTGAGGACACGGCCATCTATTACTGCGCGG-CG---GATAGTCCA
 DR20006 GAAACCTGAGGACAGGCCATGTACTACTGTGCAATCA---CTGAAATTG
 DR25006 GAAACCTGAGGACACGGCCATGTATTACTGCGCGTAGATGGTTGGACCC
 DR20006 CAAACCTGAGGACACGGCCATGTATTACTGTGCG-----CC
 DR21006 GAAACGGAGGACACTGCGACTACTACTGCGCTGAAATCAATTAGC--
 DR09006 GAGGCCTGAGGACACGGCCGTATTACTGTGCGGCAGATTG-----
 DR17006 GAAACCTGAGGACACGGCCATCTATTACTGTGCGGCAG---CGGACCC
 DR13006 GCAACCTGACGACACTGGCGTGTACTACTGTGCGGCC---CAA
 DR02006 GAAACCCGAGGACACGGCCGTATTACTGTGGGGCAGT-----

DR01006 -----A-AC---CTGGGGGTTATTGTGGGTA-
 DR27006 -----GTAC---CCGTGCCATCTCCTTGATG-
 DR03006 ACTTGGGACCT-----GGCG-CCATT-----CTTGATTG
 DR11006 AGATGGGGGCTTGTGATGCGAGATGGGCACCTTAGC---GACAAGGAC-G
 DR24006 AGATGGGGGCTTGTGATGCGAGATGGGCACCTTAGC---GACAAGGAC-G
 DR16006 GCGTTTT-CTAGTCCCTGTTGGAGCACTTC-TAGAC---TCGAAAGTAG
 DR19006 TAGTTTTTACTGGTACT-----GCAC-----C---ACG-----G
 DR17006 GGTGGTAGTTGTGAAATTGC---CTTTC-----TATTGACTA-----
 DR16006 TGTTACATGCCGACTATGC---CCGCTCCCCGATACGAGACAGTTTGG
 DR09006 AGTGGTATGGGTGCAATT-----AAGGACTACTTTACT---C-----G
 DR25006 GGAAGGAAG---GGGAATCGGGTTAC---CCTGGTCGGTCCAATGTGAA
 DR04006 GGTTGAA-----TATC-----CTATTGCAAGAC---ATGTGTT
 DR21006 ---TGGTGGCTGGTATT-----TGGACCGAATTACTGG-CTCTCTGTG
 DR09006 ---GAAATACTGGA---CTTGTGGTGC---CCAGA-CTGG-----AG
 DR17006 AAGTATATATTATAGTATC-----CTCCNNAT-----
 DR13006 AAGAAGGATCGTA-----CTAGATGGC-----CGAGCCT-----
 DR02006 -----CTCCCTAA---TGGACCGAATTTC

DR01006 --TGGGTANTGCCCTGGGGCCAGGGGACCCAGGTACCCGTCTCCTCACT
 DR27006 --T-----CTGGGGCCAGGGGACCCAGGTACCCGTCTCCTCACT
 DR03006 AAAAAGTATAAGTACTGGGGCCAGGGGACCCAGGTACCCGTCTCCTCACT
 DR11006 TTTGCGTATAACTACTGGGGCCGGGGGACCCAGGTACCCGTCTCCTCACT
 DR24006 TTTGCGTATAACTACTGGGGCCGGGGGACCCAGGTACCCGTCTCCTCACT
 DR16006 CGA-CT-ATAACTATTGGGGCCAGGGGATCCAGGTACCCGTACCCGTACT
 DR19006 CGC-CTTATAACGTCTGGGTCAAGGGGACCCAGGTACCCGTCTCCTCACT
 DR07006 CTGGG-----GCCAGGGCACCCAGGTACCCGTCTCCTCACT
 DR16006 CTGGGATGATTT-----GGCCAGGGGACCCAGGTACCCGTCTCCTCACT
 DR20006 CTGGG-----GCCAGGGGACCCAGGTACCCGTCTCCTCACT
 DR25006 GATGGTTATAACTATTGGGGCCAGGGGACCCAGGTACCCGTCTCCTCAC-
 DR20006 CGAGAT---ACG---GCGACCCGGGGACCCAGGTACCCGTCTCCTCAC-
 DR21006 GGTGCATATGCCATCTGGGGCCAGGGGACCCAGGTACCCGTCTCCTCAC-
 DR09006 GATACTTCGGACAG-TGGGTCAAGGGGCCAGGGACCCAGGTACCCGTCTCCTCACT
 DR17006 --TGAGTATAAGTACTGGGGCCAGGGGACCCAGGTACCCGTCTCCTCACT

DR13006	CGAGAATGGAAACAACTGGGGCCAGGGGACCCAGGTACCGTCTCCCTCA--
DR02006	CCAACATGGG--TGGGGGGCCAGGGAACCCAGGTACCGTCTCCCT----
DR01006	AG----TTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR27006	AG----TTACCCGTACGAGGTTCCGGACTACGGTTCTTAATAGAATT
DR03006	AGCTAGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR11006	AG----TTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR14006	AGCTAGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR16006	----AGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR19006	----AGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR07006	----AGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR16006	----AGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR20006	----AGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR25006	---TAGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR20006	---TAGTTACCCGTACGACGAACCGGACTACGGTTCTTAATAGAATT
DR21006	---TAGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR09006	AGCTAGTTACCCGTACGACGTTCCGGACTACGGTTCTTAATAGAATT
DR17006	-----
DR13006	-----
DR12006	-----TA

FIGURE 7(4)

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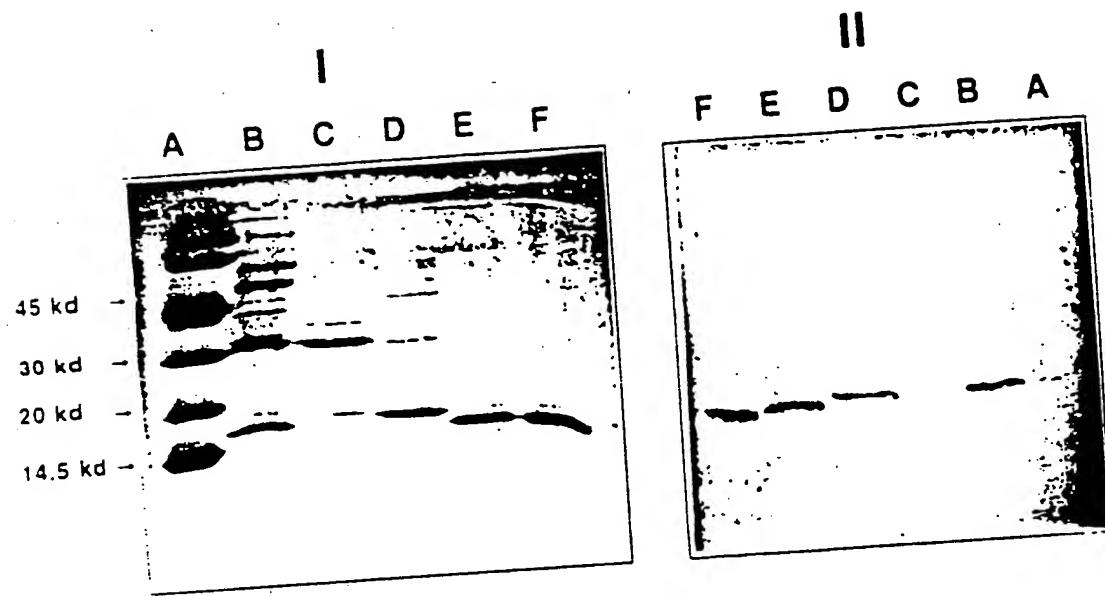
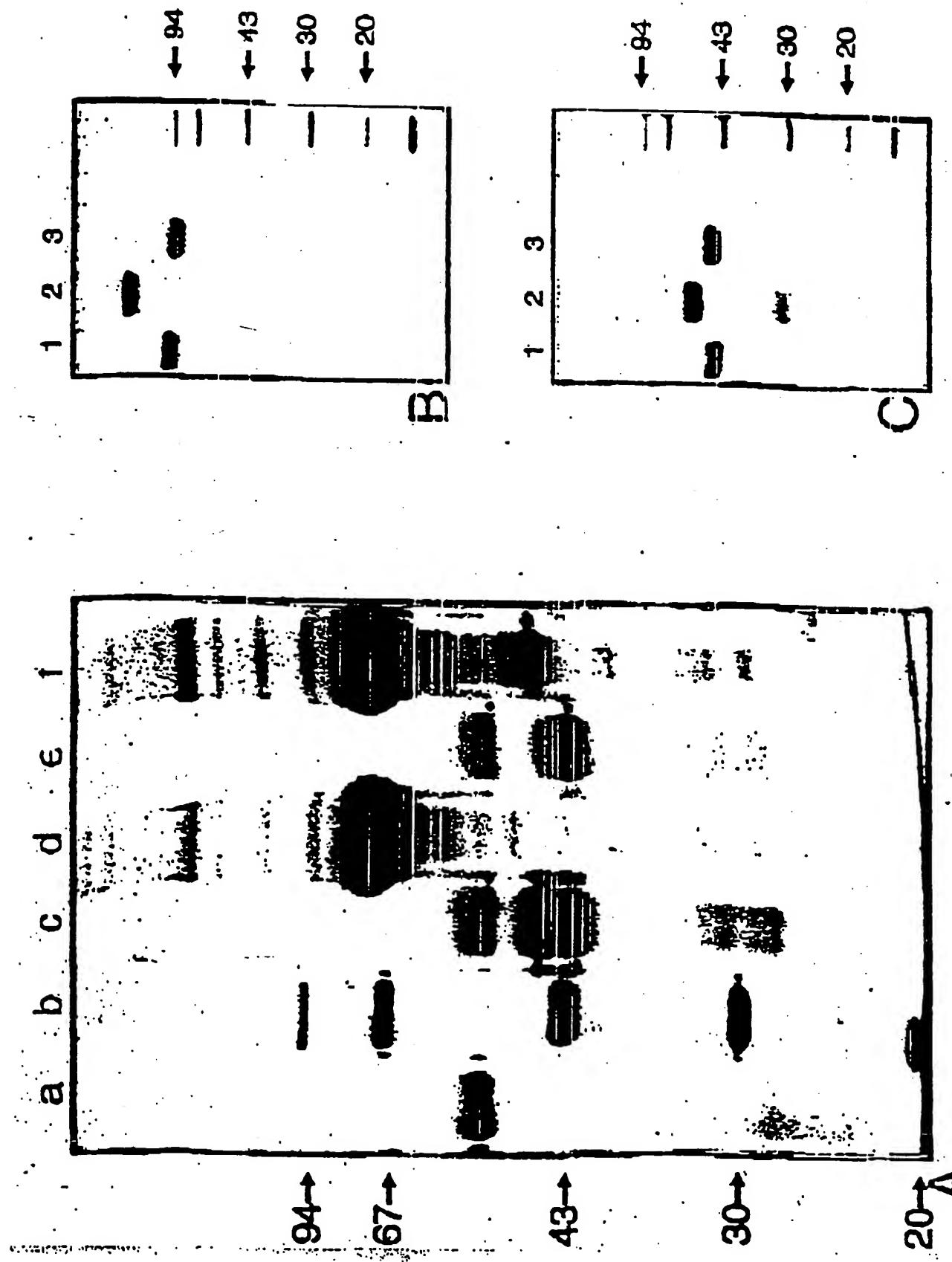
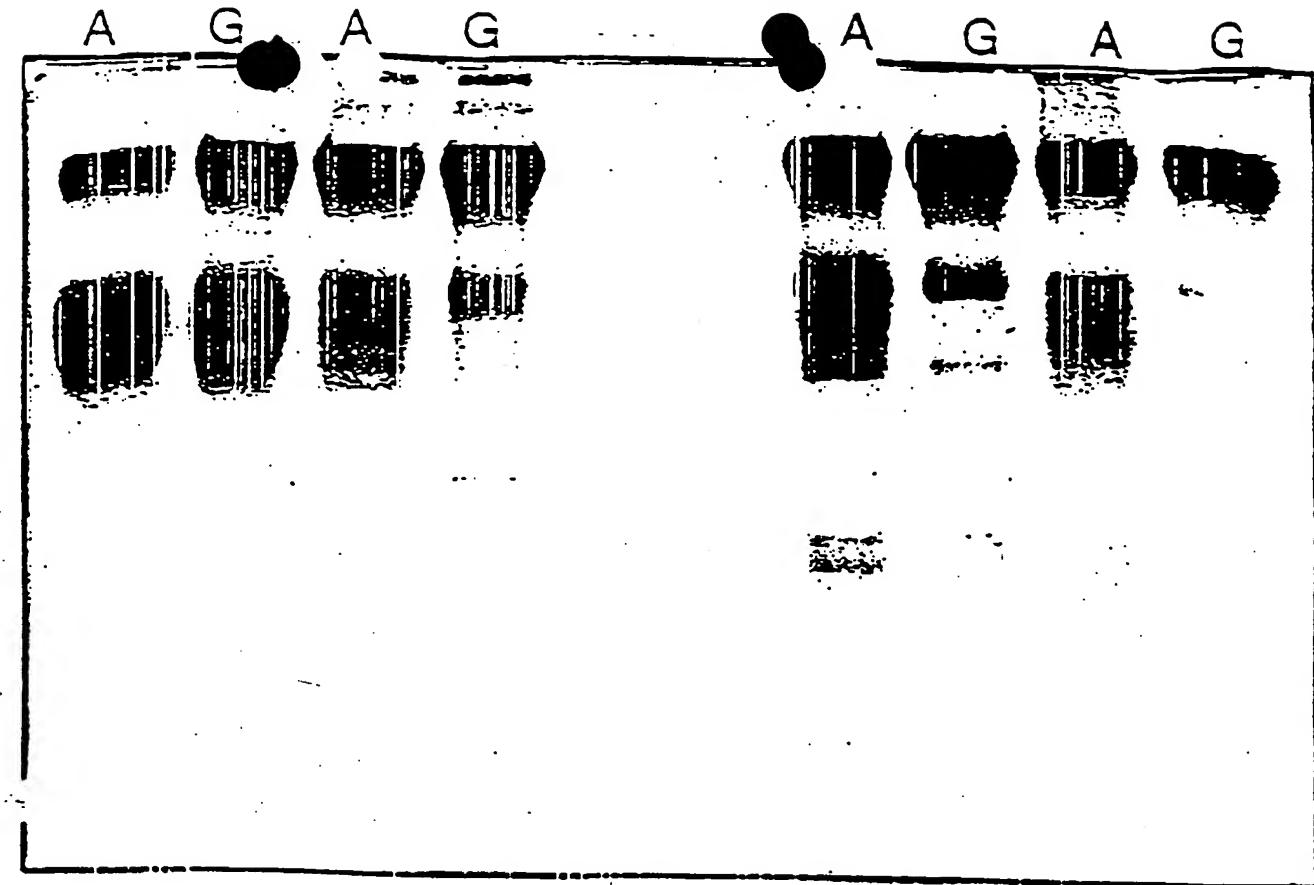


FIGURE 8

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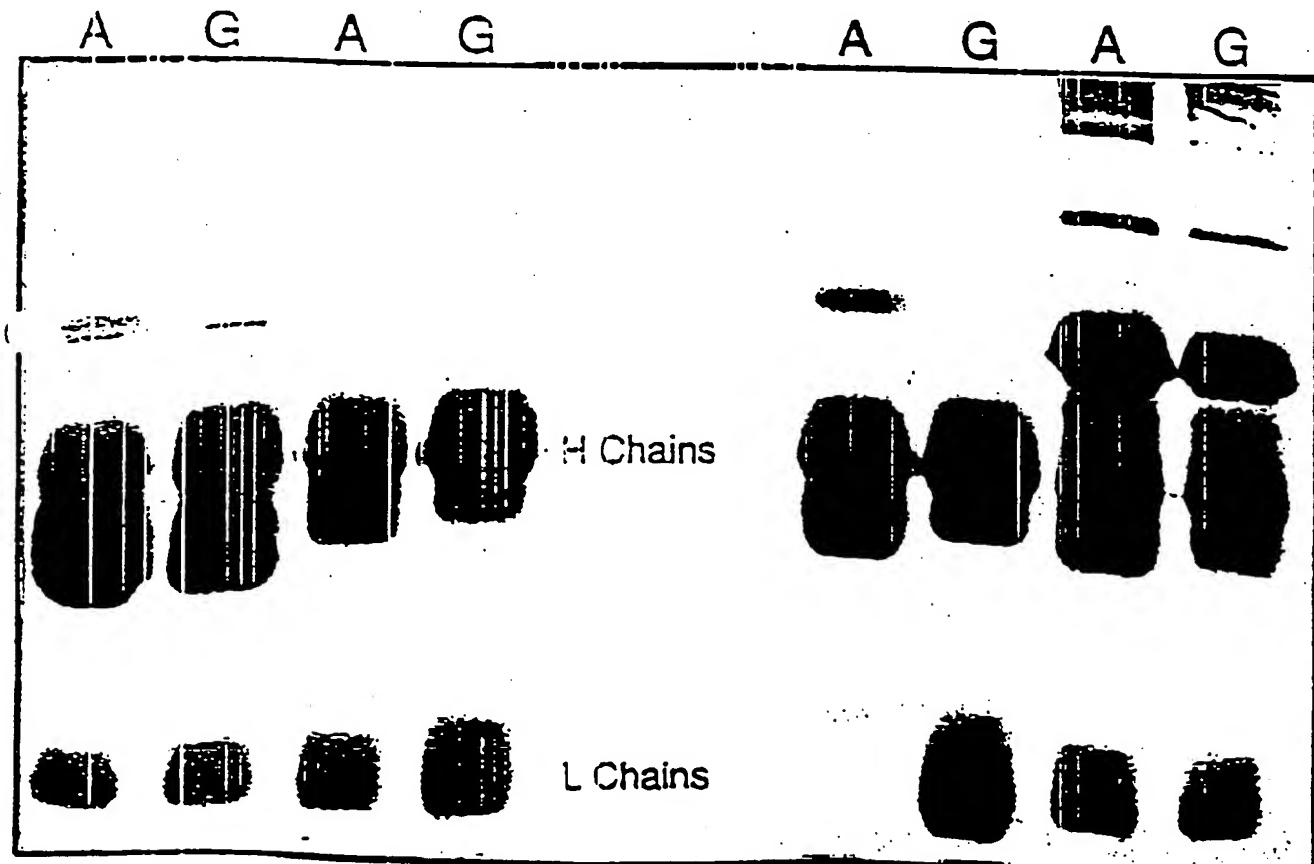
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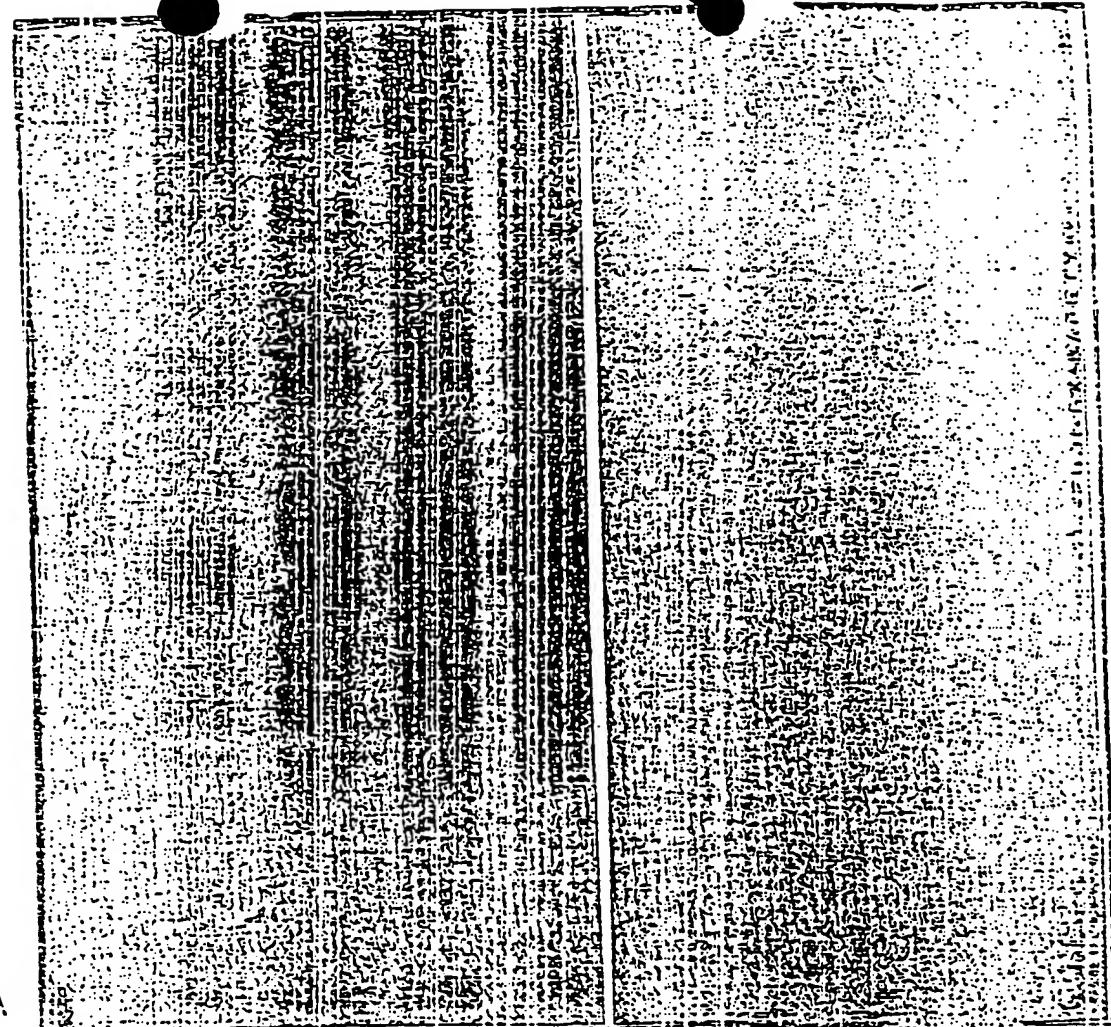
A

C. bactrianus L. vicugna L. glama L. pacos



B

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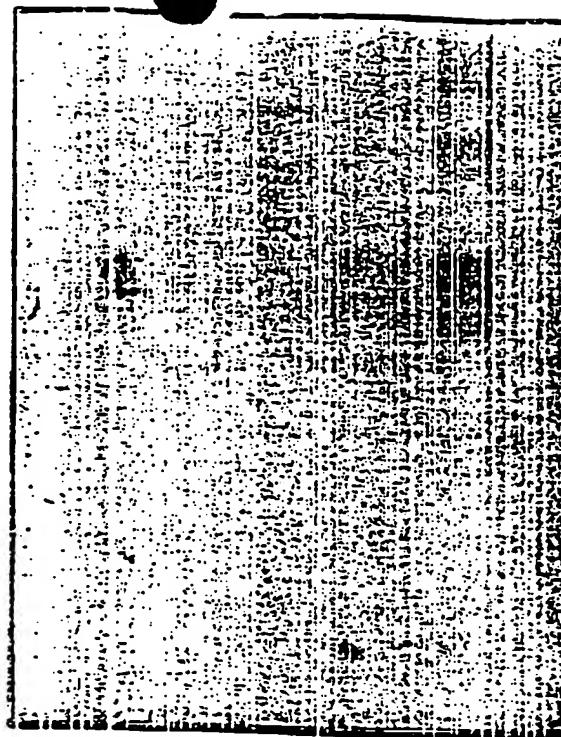


Prot. A	Ig1	Ig2	Ig3	Tct.Ser	Ig1	Ig2	Ig3	Tot.Ser
Control				T. evansi infected				
Units/5ul	65	1258	1214	2700	2978	147	157	160

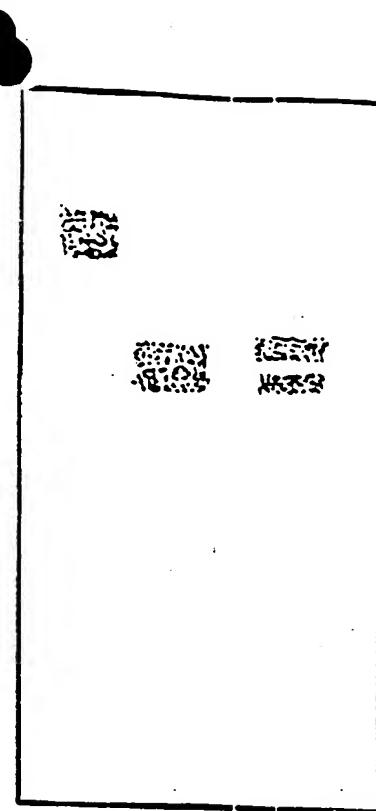
figure 3 (1)

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3 B



Ig1 Ig2 Ig3 Ig1 Ig2 Ig3
Healthy *T. evansi* infected



Ig1 Ig2 Ig3
Ponceau Red

figure 3 (2)

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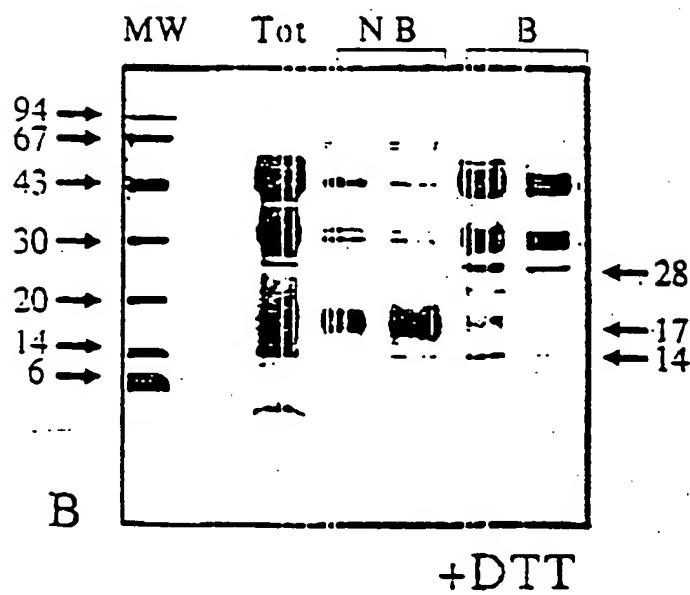
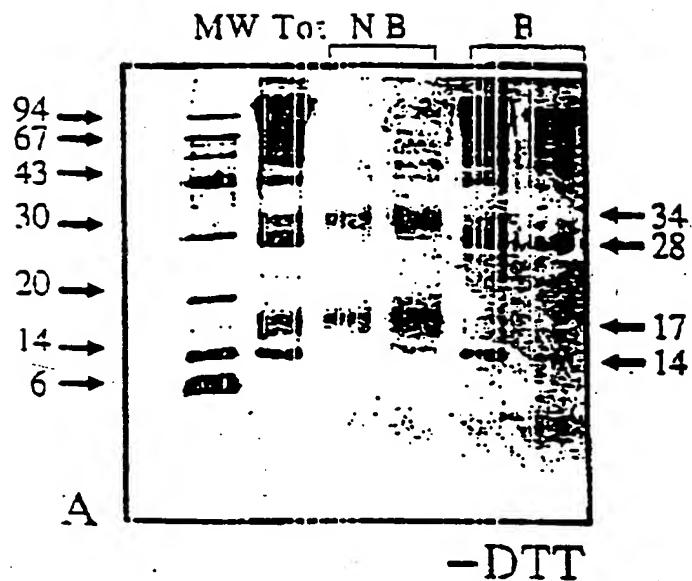


Fig 4. Analysis of IgG₃Papain Fragments by SDS - PAGE